

CYNOPS ORPHICUS, A NEW SALAMANDER FROM GUANGDONG PROVINCE,  
SOUTH CHINA (AMPHIBIA, CAUDATA, SALAMANDRIDAE)

Jean-Paul RISCH

Laboratoire des Reptiles et Amphibiens,  
Muséum national d'Histoire naturelle,  
25 rue Cuvier, 75005 Paris, France

ABSTRACT. - A series of salamanders collected at Dayang, Guangdong Province, China, in 1936 represents an undescribed species and is given the name *Cynops orphicus* n. sp. The species previously has been reported under several erroneous scientific names. It seems to be restricted to its type locality and has not yet been collected since its discovery nearly fifty years ago.

INTRODUCTION

The question of the occurrence of any salamander of the genus *Cynops* Tschudi, 1838 in southeastern China has been raised by the description by FREYTAG and EBERHARDT (1978) of *Cynops shataukokensis* from an alleged type locality in Guangdong Province, near the border of Hong Kong territory, which has been shown to be a strict synonym of *Cynops pyrrhogaster* based on specimens of this Japanese species imported to Hong Kong (RISCH and ROMER, 1980). There is a clear answer to this question now, as it could be found that the salamanders collected in the northeastern part of Guangdong by the late J. Linsley GRESSITT during his collecting trip into the border region of Guangdong, Fujian, and Jiangxi Provinces (cf. map in GRESSITT, 1937: 440) in 1936, were misidentified when they were first reported (POPE and BORING, 1940) and in subsequent publications (GRESSITT, 1941; FREYTAG, 1979), and that they are in fact assignable to *Cynops*. I here present evidence that they represent a distinct species which I take

the opportunity to name:

*Cynops orphicus* sp. nov.

*Pachytriton brevipes*: POPE and BORING (1940: 22); GRESSITT (1941: 5).  
*Cynops shataukokensis*: FREYTAG (1979: 77).

*Holotype*. - MVZ 22474, adult male, J.L. GRESSITT coll., 4 August 1936.

*Type locality*. - Dayang (= Tai-Yong), Shantou Region, Guangdong Province, China, 23°35' N, 115°51' E, altitude 640 m (fig. 1: A).

*Paratypes*. - 97 adult specimens, collected with the holotype: MVZ 22416-73, 22475-506 (90 specimens); MNHN 1980.4096-98 (3 specimens, formerly MVZ 24134-36); AMNH 46174; CAS 78704; 2 unnumbered specimens in the Department of Biology, Yenching University, Peking (POPE and BORING, 1940: 22; present location unknown).

*Diagnosis*. - A medium-sized *Cynops* distinguished from all other known species by the following combination of characters: 1) head flattened, with a fairly prominent canthus rostralis; 2) skin very finely granulated; 3) tail with small blackish dots and moderate dorsal and ventral fins (which are apparently more pronounced than in other species); 4) bright dots constantly present near base and palm on the underside of each fore and hind limb; 5) ventral pattern consisting of an irregular light median longitudinal stripe and dark spots arranged in lateral rows.

*Description*. - A detailed description based on fresh material has already been presented by GRESSITT (1941) as follows:

"Head 3.25 times in length from snout to vent, dorsoventrally compressed, rounded anteriorly; snout subtransverse apically, projecting, canthus rostralis fairly prominent; loreal region strongly oblique; upper lip with a flap of skin extending over corner of mouth; eye small, slightly oblique, shorter than its distance from nostril, or distance between nostrils; parotoids poorly developed, terminated posteriorly by a slightly sinuous and oblique groove; dorsal surface of head smooth, flat, slightly concave, with a posteriorly pointing, slightly raised V behind middle, its apex joining vertebral line, which is slightly concave, becoming raised before base of tail.

Vomerine teeth commencing in a line with anterior border of choanae, anteriorly forming a single, fine ridge, forking slightly before middle, forming a narrow, inverted Y.

Tongue with apical portion short, much narrower than mouth cavity.

*Limbs small, anterior pair slightly longer than, and only half as thick as, hind pair, digits slender, gradually attenuated and acute apically; fingers 3-2-4-1, and toes 3-4-2-1, in decreasing order of length; toes webbed for basal fifth.*

*Tail nearly as long as head and body length, with moderate dorsal and ventral fins, margins parallel basally, narrowing apically to an acute tip.*

*Cloacal lips thick and strongly swollen, longer than depth of tail, separated posteriorly, where margins are finely grooved transversely.*

*Skin smooth, extremely fine granules or vermiculations dorsally, microporous ventrally; sides almost without wrinkles, about fourteen indistinct costal grooves discernible on upper parts; gula and throat almost without longitudinal or transverse grooves."*

The above description (which is extensively quoted here because it is rather complete and might not be easily available in the original text) requires only minor modification. Sexual dimorphism is well developed: the cloacal lips are thick and strongly swollen in males only; the dorsal tail crest is well pronounced in males only. Apart from this, the tail may be slightly longer than head plus body length in some specimens, especially in females. The total length of the males is smaller on average than that of the females.

*Coloration.* - The description of the coloration in life given by GRESSITT (1941) who examined the specimens alive or freshly preserved is repeated below:

*"Dark brown to blackish, with bright orange below as follows: four large irregular blotches on gula, an irregular, moderately broad, median longitudinal stripe on belly, on each side of which is a row of irregular blotches, some connected with the stripe; undersides of arms and legs with a spot near base and another near palm; lips of vent largely orange, black posteriorly. Tail bright red-orange on basal three-fourths of ventral fin, entire apical half becoming pale orange-brown, more orange on both fins, spotted and blotched with black."*

In preservative: dorsum brownish, the ventral parts which are orange in life are of a pale yellow coloration.

*Etymology.* - The species is named *orphyicus* (derived from Orpheus, the name of a figure of ancient Greek mythology) in memory of those who passed away in 1982: on 15 March, Hong Kong herpetologist John D. ROMER, who first draw my attention to the MVZ specimens, died at Ryde in the Isle of Wight, England; on 26 April, the senior entomologist at the Bernice P. Bishop Museum (Honolulu, Hawaii) and director of the Wau Ecology Institute (Papua New Guinea) J. Linsley GRESSITT, who collected the salamanders at Dayang and intended to co-author the present paper, and his wife Margaret Kreite

GRESSITT died in the crash of a Chinese jetliner between Canton and Guilin; and on 30 September, my father, Ady RISCH, deceased in Luxembourg while I was away on a trip to the Far East.

## DISCUSSION

### *Type specimens and earlier misidentifications.*

*C. orphicus* has been misidentified since its discovery. Two specimens (probably females) given by GRESSITT to the Department of Biology of Yenching University, Peking, were identified as juveniles of *Pachytriton brevipes* by POPE and BORING (1940: 22). Yenching University no longer exists as such (GRESSITT, in litt. 26 December 1981) and I could not yet find out where these two specimens are located at present. GRESSITT (1941: 5) only mentions the 94 specimens in the MVZ collection at that time (MVZ 22416-506; MVZ 24134-36, not 24314-336 which is a misprint) as *P. brevipes*; but the bottle containing the MVZ series also contained a label of unknown origin bearing a name which has never been published and thus is not extant for nomenclatural purposes.

The CAS and AMNH specimens were registered under the name *Cynops orientalis*; the latter has been examined by FREYTAG (1979: 76-77) who concludes that the Dayang population should be identical with, or at least very close to, *C. shataukokensis* which is a synonym of *C. pyrrhogaster*, a species from Japan not inhabiting Guangdong Province (RISCH and ROMER, 1980).

### *Relationships.*

I have had the opportunity to examine some specimens of *C. orientalis* from Central Fujian (fig. 1: B), where this species reaches its southern range limit (TING, ZHENG and CAI, 1980). These specimens showed no intermediate character whatsoever between *C. orphicus* and the more northern populations of *C. orientalis*. At this preliminary stage, it can be assumed that (from a morphological point of view) the new species is closer to *Cynops cyanurus* occurring in Guizhou and probably also in Yunnan (LIU, HU and YANG, 1962). More detailed comparisons of *C. orphicus* with the other species of the genus will be published elsewhere (RISCH, in preparation).

### *Habits and habitat.*

Virtually nothing is known about the type locality and habitat

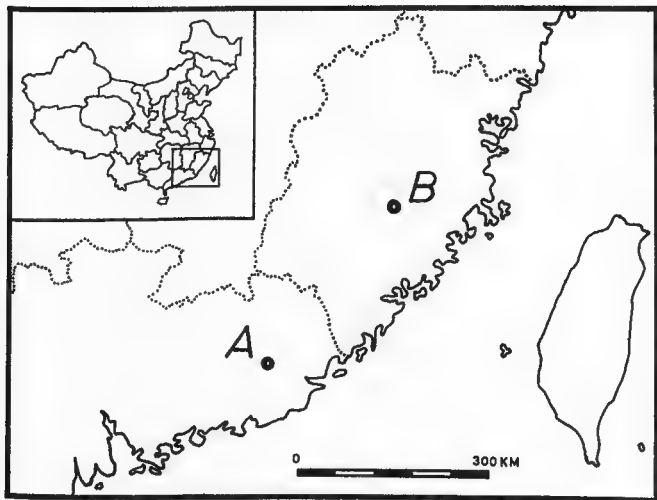


Fig. 1. - Map of southeastern China showing the type locality of *Cynops orphicus* n. sp. in Guangdong (A) and the southernmost locality Daiyun Shan of *Cynops orientalis* in Fujian (B). Scale 1:6.000.000. Inset: map of China with provincial boundaries.

of *C. orphicus*. GRESSITT (1937: 445) stayed at Dayang from 2 until 7 August 1936, and he provides a short description of the locality: "Small summer resort in E. Kwangtung [= Guangdong] Prov., about 80 km WNW of Swatow [= Shantou], NW of Wu-king-fu [= Wujingfu]. Located in cultivated mountain valley, encircled by partly wooded mountains." He also reports (GRESSITT, 1937: 441): "At Tai-Yong [= Dayang] I was unable to collect because of illness, but work was carried on by two collectors who had been with me since early in June."

As for the habitat, GRESSITT (1941: 5) only comments: "The specimens were probably caught in pools connected with a small stream in the valley."

The specimens were caught in the water, as indicated by their stomach contents analysed by GRESSITT (1941: 6): "Stomachs of 25 specimens contained the following: 5 earthworms, 4 amphipod crustaceans, 3 mites, 3 lepidopterous or trichopterous larvae, 4 other insect larvae, 2 spiders, 2 terrestrial and 4 aquatic hemipterans, 1 small water beetle (Dytiscidae), 1 carrion beetle (*Hister*), termites (2 stomachs), 1 centipede, 1 amphibian (?) egg, 1 reptile egg, 1 nematode parasite, 1 snail, 2 ants, and some plant material."

The swollen cloaca in the males suggests that they were still in reproduction condition at the date of capture; the species might inhabit water all year round.

#### *Range and population status.*

*C. orphicus* is at present only known from its type locality, where it was collected as long ago as 1936.

GRESSITT (1937: 441) makes some interesting remarks about the general area he visited during his trip: "The region may be considered to be in some degree isolated, and to have lost part of its fauna, through human extermination of the flora. In sparsely populated mountain areas in the regions visited much of the land was barren grass-land with only scattered trees, the forests and jungles generally limited to steeper mountain slopes and ravines."

Given the fact that *C. orphicus* might be endangered if not already extinct on account of human development, its type locality should be investigated again as soon as possible.

## ACKNOWLEDGEMENTS

Thanks are due to Miss LIN Yuh (Paris) and to MOU Yung-Ping (MNHN) for the translation of Chinese texts, to David B. WAKE (MVZ), Alan E. LEVITON (CAS) and Richard G. ZWEIFEL (AMNH) for the loan of, or information on, specimens in their care, and to TING Han-Po (Fujian Normal University, Fuzhou) for enabling me to examine specimens from Fujian. I am very grateful to David B. WAKE for his valuable comments on the manuscript.

## ABBREVIATIONS

AMNH = American Museum of Natural History, New York.

CAS = California Academy of Sciences, San Francisco.

MNHN = Muséum national d'Histoire naturelle, Paris.

MVZ = Museum of Vertebrate Zoology, University of California, Berkeley.

## RÉSUMÉ

La question de la présence de salamandres du genre *Cynops* Tschudi, 1838 dans le Sud-Est de la Chine s'est posée depuis la description par FREYTAG et EBERHARDT (1978) de *Cynops shataukokensis* prétendu provenir d'une localité type dans la province de Guangdong située près de la frontière de cette province avec le territoire de Hong Kong. Il a été montré que *C. shataukokensis* est un simple synonyme de l'espèce japonaise *Cynops pyrrohogaster* décrit d'après des spécimens importés à Hong Kong (RISCH et ROMER, 1980). D'autre part, une série de salamandres récoltée en 1936 à Dayang, dans le Nord-Est de Guangdong, par feu J. L. GRESSITT avait été mal identifiée et signalée sous des noms scientifiques erronés dans plusieurs publications (POPE et BORING, 1940; GRESSITT, 1941; FREYTAG, 1979). Ces spécimens représentent sans aucun doute une espèce du genre *Cynops* qui est nommée *Cynops orphicus* n. sp. Plusieurs extraits des notes de GRESSITT (1937, 1941) concernant la description, la vie et les moeurs de la nouvelle espèce et son origine géographique sont repris ici. Ses affinités, son écologie ainsi que les anciennes erreurs de détermination sont brièvement discutées. L'espèce qui n'a plus été récoltée depuis sa découverte en 1936, pourrait être géographiquement limitée à sa seule localité type; les

indications de GRESSITT (1937) font même penser qu'à l'heure actuelle, elle pourrait être menacée voire déjà éteinte.

#### LITERATURE CITED

- FREYTAG, G. E., 1979. - Röntgenanatomische Befunde am Schädel von *Cynops shataukokensis* nebst Bemerkungen über Arten und Unterarten der Gattung *Cynops* Tschudi, 1838 (Amphibia: Urodela: Salamandridae). *Sitz.-ber. Ges. naturforsch. Fr. Berlin, N. F.*, 19: 70-80.
- FREYTAG, G. E. and EBERHARDT, H.-J., 1978. - Ein neuer Wassermolch der Gattung *Cynops* aus der chinesischen Provinz Kwangtung (Amphibia: Caudata: Salamandridae). *Salamandra*, 1977, 13 (4): 150-156.
- GRESSITT, J. L., 1937. - Note on a Collecting trip in Southeastern China. *Lingnan Sci. Journ.*, 16 (3): 439-444.
- 1941. - Amphibians and Reptiles from Southeastern China. *Philippine Journ. Sci.*, 75 (1): 4-59.
- LIU, Cheng-chao, HU, Shu-chin and YANG, Fu-hwa, 1962. - Preliminary report of Amphibia from western Kweichow (In Chinese, with English summary). *Dongwu Xuebao/Acta zool. sinica*, 14 (3): 381-392.
- POPE, C. H. and BORING, A. M., 1940. - A Survey of Chinese Amphibia. *Peking Nat. Hist. Bull.*, 1940/41, 15 (1): 13-86.
- RISCH, J.-P. and ROMER, J. D., 1980. - Origin and Taxonomic Status of the Salamander *Cynops shataukokensis*. *Journ. Herpet.*, 14 (4): 337-341.
- TING, Han-Po, ZHENG, Ji and CAI, Ming-Chang, 1980. - A Study on the Geographical Distribution and Regional Faunistic Composition of the Amphibia and Reptilia of Fujian Province (In Chinese, with English summary). *Journ. Fujian Normal Univ., Nat. Sci. Ser.*, 1980 (5): 57-74.